



# The Night Sky

The Newsletter of  
The Astronomy Club of Akron

www.acaoh.org

Volume 36 Number 1

January 2014

Next Meeting: Friday - January 24 , 2014 - 8:00 PM - Kiwanis

## The President's Column

By Gary Smith

Hello to all fellow sky watchers. The January sky is truly a sight-to-behold. From the Earth-bound perspective it would seem the winter sky received more than a fair share of celestial delights. I think it is safe to say the constellation of Orion (the hunter) is the most easily recognized constellation today and throughout human history.

In days not long past, most publications would print all astronomical photographs in black and white. The venerable amateur astronomer's monthly publication, *Sky & Telescope*, would typically print only a color cover. All else printed in the magazine was black and white. Advances in color reproduction gave rise to a thriving market for color astronomical posters. The constellation Orion predates the transition of black & white photographs giving way to color images. Alpha Orionis (Betelgeuse) has an apparent magnitude of 0.42 and is the ninth brightest star in the sky. Even under less than ideal viewing conditions it is easy to see the reddish color. Betelgeuse is not an ordinary star. It is a red supergiant star and is one of the largest and most luminous of the bright stars in the observable sky. The diameter of Betelgeuse is remarkable. If

Betelgeuse were to replace the Sun in the center of the solar system, its surface would extend past the asteroid belt possibly to the orbit of Jupiter. Due to certain physical characteristics of Betelgeuse and stars like Betelgeuse, its mass is estimated to be between 5 to 30 solar masses. Its distance is likewise an estimate at 640 light years.

Beta Orionis (Rigel) has an apparent magnitude of 0.12 and is the seventh brightest star in the sky. It also easily displays its blue-white color in even dismal viewing conditions. The stellar characteristics of this remarkable star are almost too numerous to list. Rigel is a triple star system with Rigel A as the dominant component with an absolute magnitude of  $-7.84$ , approximately 130,000 times the brightness of the Sun. Rigel A is a blue supergiant star with about 18 solar masses and an approximate distance of 860 light years.

One of the many highlights of the constellation Orion is the Great Orion Nebula (M42). It is a spectacular diffuse nebula located south of Orion's Belt. This bright nebula is visible to the unaided eye and is a magnificent object for both binoculars and small telescopes (larger telescopes capable of a wide-field of view are ideal). M42 is the closest region of massive star formation to

Earth with a distance of 1344 light years. M42 is so bright that colors may be seen through the eyepiece of a large amateur telescope (approx 24-26inch diameter). Astrophotography of M42 reveals three colors. There is a distinctive greenish tint that proved to be a mystery until the early part of the twentieth century. The green color is caused by a low probability electron transition in doubly ionized oxygen. M42 also displays a red hue. This is a well understood recombination line radiation of Hydrogen alpha at 656.3nm. The third color is a blue-violet color due to reflected radiation from massive and very energetic O-class stars at the core of the nebula.

The mythological drawing of Orion the hunter will easily show its component features.

- 1) The Belt of Orion is composed of three stars of very similar brightness that are evenly spaced and appear to lie on a nearly straight line.
- 2) The Head. Three stars compose a small triangle that marks the head of Orion. At the apex of the triangle is a hot blue giant star named Meissa. The two stars that comprise the base of the triangle are Phi-1 and Phi-2.
- 3) North Arrow. Together with the three stars of Orion's belt, Eta Orionis forms the head of an arrow. M42 and M43 are at the lower end and form the tail of the arrow.

(Con't Page 5)

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Lou Poda

## November Treasurer's Report

By Glenn Cameron

11/1/2013 Through 11/30/2013

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Checking Beginning Balance	\$2,231.84
<b>Income</b>	
	0.00
<b>Total Income</b>	<b>\$0.00</b>
<b>Expenses</b>	
	0.00
<b>Total Expenses</b>	<b>\$0.00</b>
<b>Income Less Expenses</b>	<b>\$0.00</b>
<b>Checking Ending Balance</b>	<b>\$2,231.84</b>

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Savings Beginning Balance	\$2,500.67
Earned Interest	0.10
<b>Savings Ending Balance</b>	<b>\$2,500.77</b>

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Petty Cash Beginning Balance	\$59.55
	0.00
<b>Petty Cash Ending Balance</b>	<b>\$59.55</b>

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Petty Cash	59.55
Savings	2,500.77
Checking	2,231.84
<b>Grand Total</b>	<b>\$4,792.16</b>

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Article by Glenn Cameron  
ACA Treasurer.

## December Treasurer's Report

By Glenn Cameron

12/1/2013 Through 12/31/2013

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Checking Beginning Balance	\$2,231.84
<b>Income</b>	
Dues	120.75
Magazine Subscriptions	32.95
<b>Total Income</b>	<b>\$153.70</b>
<b>Expenses</b>	
Newsletter Expenses	-15.80
Magazine Subscriptions	-32.95
<b>Total Expenses</b>	<b>-\$48.75</b>
<b>Income Less Expenses</b>	<b>\$104.95</b>
<b>Checking Ending Balance</b>	<b>\$2,336.79</b>

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Savings Beginning Balance	\$2,500.77
Earned Interest	0.11
<b>Savings Ending Balance</b>	<b>\$2,500.88</b>

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Petty Cash Beginning Balance	\$59.55
	0.00
<b>Petty Cash Ending Balance</b>	<b>\$59.55</b>

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Petty Cash	59.55
Savings	2,500.88
Checking	2,336.79
<b>Grand Total</b>	<b>\$4,897.22</b>

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Article by Glenn Cameron  
ACA Treasurer.

# SWAP & SHOP



## For Sale:

Meade LX80 mount, tripod, and one counterweight. Includes Autostar and battery box power supply. Also includes cigarette lighter power cable. Works fine. I'm selling because I upgraded to an LX80 mount. I don't want to ship this thing so local pickup is necessary.

Asking: \$400

Contact: Glenn R. Cameron

Phone: 330-737-1472

Email: glenn@cameronclan.org



## For sale:

15mm Ultra-Wide Angle Eyepiece

Asking: \$40

Contact: Lew Snodgrass

Phone: 330-819-4886

Phone: 330-867-4800 Ask for Lew.

Email: chrply@aol.com



## For Sale:

Pentax XW 20mm Eyepiece

- Excellent condition.
- Small mark on 1.25" barrel.
- Always used in a compression clamp.

Asking: \$220 (cash)

Contact: Fred Fry

Email: riverfry@gmail.com



## For sale:

Televue Radian 12 mm Eyepiece

- Excellent condition.

Asking: \$180 (cash)

Contact: Fred Fry

Email: riverfry@gmail.com



## For Sale:

22mm Orion Epic ED-2 ED Eyepiece  
25mm Orion Epic ED-2 ED Eyepiece

Asking: \$35 each or \$65 for both

Contact: Glenn Cameron

Phone: 330-737-1472

Email: glenn@cameronclan.org



## For Sale:

Televue Radian 18 mm Eyepiece

- Excellent condition.

Asking: \$180 (cash)

Contact: Fred Fry

Email: riverfry@gmail.com

**Advertise** in the Swap n Shop!  
Send a picture of your item and relevant information  
to the newsletter editor:  
[truemartian@aol.com](mailto:truemartian@aol.com)

## President's Column Con't

4) Orion's Club. Stretching northward from Betelgeuse are the stars that comprise Orion's Club. Mu Orionis marks the elbow, Nu and Xi mark the handle of the club and Chi-1 and Chi-2 mark the end of the club.

5) Orion's Shield. West from Bellatrix lie six stars that are all designated Pi Orionis (pi-1, pi-2, pi-3, pi-4, pi-5, and pi-6) that make up the shield of Orion.

6) Orion's Sword. Hanging southward from Orion's belt is his sword. It consists of the Trapezium and the Great Orion Nebula (M42). Using binoculars M42 demonstrates clouds of nascent stars, luminous gas, and dust.

The Trapezium is a young tight open cluster of stars that formed directly out of the parent nebula. The five brightest stars are on the order of 15-30 solar masses. They are all young, bright, very energetic stars that are Type O and B.

The January sky demonstrates an asterism known as the Winter Hexagon or the Winter Circle. This is

a six sided figure that has six well known stars at its vertices. Rigel (beta Orionis), Aldebaran (alpha Tauri), Capella (alpha Aurigae), Pollux (beta Geminorum), Procyon (alpha Canis Minoris), and Sirius (alpha Canis Majoris). The asterism connects the six brightest stars in six prominent winter constellations. It provides an astronomical version of "connect the dots (stars)" and provides a useful means to locate each of the individual stars and constellations and their relative positions in the winter sky.

In more recent years I have noticed a trend of folks asking, "What is the distance of this star?" or the distance to other astronomical objects. The winter sky prominently displays two of the brightest and closest stars in the entire sky. The stars Sirius (alpha Canis Majoris) and Procyon (alpha Canis Minoris).

Sirius with an apparent magnitude of  $-1.46$  is the brightest star in sky. Sirius appears to be so very bright because of both its very large intrinsic luminosity and its close proximity to Earth. At a distance of 8.6 light years, Sirius is one of Earth's near

neighbors. For northern hemisphere observers between latitudes 30 and 73 degrees, it is the closest star (after the Sun) that can be seen with the unaided eye.

Procyon is another prominent star in the winter sky that is both very bright and very close. It is the eighth brightest star in the sky with an apparent magnitude of 0.34. It is 11.46 light years distant. Procyon's brightness is more due to its closeness and not so much due to an intrinsic brightness. Procyon is 1.4 times the mass, twice the radius, and 6.9 times more luminous than the Sun.

These are but a few of the highlights of our January night sky. Our celestial canopy holds treasures and delights for both young and old.

*Article by Gary Smith,  
ACA President.*

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# YOUR ARTICLE COULD BE HERE!

Got something to share related to space and astronomy? Share your astronomy experiences and interests with others in an article for the Astronomy Club of Akron's Night Sky Newsletter! Submit your articles in plain text format and any related photos in JPG format to the newsletter editor Jason Shinn at [truemartian@aol.com](mailto:truemartian@aol.com). Deadlines for submissions are by the sixth day of each month. We look forward to YOUR submissions!

# The 2014 Seven Planets Challenge

By Jason Shinn



Welcome one and all to the 2014 observing season! Its time to dig your equipment out of the closet and dust their covers for a brand new year of observing opportunities! This

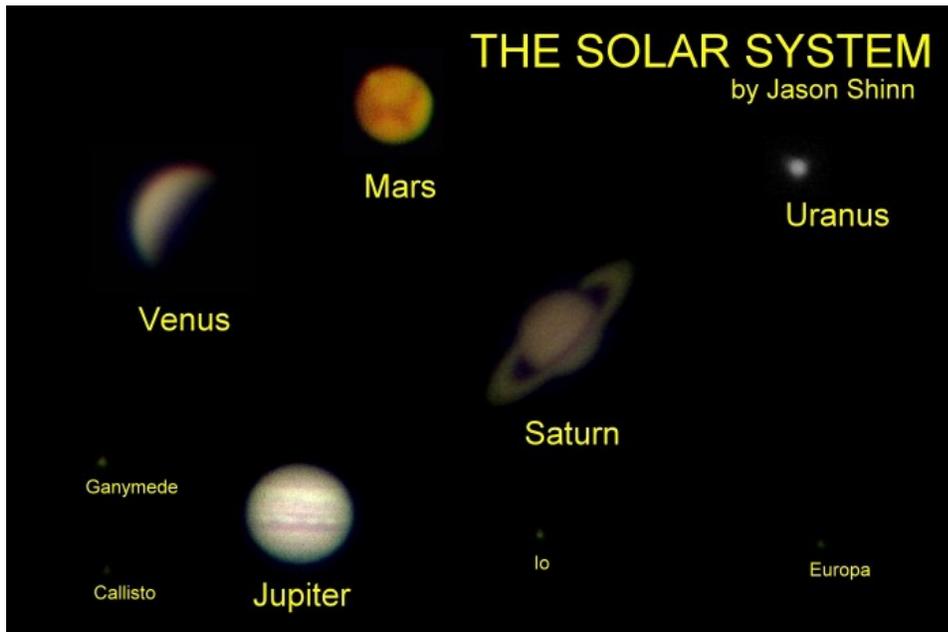
year I would like to challenge each and every member to make an effort to observe each of the seven classical planets! How often we take these seven wonders for granite in favor of other grander deep space targets!

Mercury is perhaps one of the most ignored by amateurs because it simply just doesn't fit our busy schedules! Observing its fleeting appearance is almost like scheduling a doctors appointment months in advance. If you miss it there are other opportunities but you will have to wait a few more months for Mercury to reach greatest elongation again!

Venus, beautiful and almost ever present it seems. So brilliant perhaps that we rarely bother using any sort of telescopic equipment, even failing to realize how easy it can be to view it in broad daylight! Observing Venus undergo phases through a telescope can be very pleasing to the amateur eye!

Mars is always on our collective minds whether it be in the movies, the magnificent images from NASA, or conversations about extraterrestrial life. What we forget about Mars though is that it takes a full two years for Mars and Earth to align for an opposition to occur! This year is a Mars opposition year! Lets not miss this opportunity to observe our favorite red planet!

Jupiter is without a doubt king in our solar system! Large and imposing,



The Solar System as imaged through ACA member Jason Shinn's six inch refractor. Only Mercury and Neptune are missing.

even from hundreds of millions of miles away, it is a treat for all amateurs from the novice to the advanced! Observing the four largest moons, just like Galileo before us, gives us a sense of the true dynamics of motions that take place throughout the solar system! The cloud bands are always a treat and observing the Great Red Spot is a challenge anyone can appreciate!

What can I say about Saturn that has not been said? There is no other planet in the solar system that can compare, save for Earth itself as viewed from afar. It is the number one planet for backyard telescopes when it comes to beauty and magnificence! The rings are evident in even the smallest of instruments. The only body aside from the moon that does justice to its photographs through an eyepiece! Don't miss it and its largest moon Titan in 2014!

Uranus is so far away that it takes a larger telescope to resolve the edge of its tiny pale blue disk! Even through smaller telescopes that cannot quite resolve the disk its pale blue color is very evident. A tiny blue dot floating in the blackness of space amongst the sea of stars! It takes some

experience but persistence will pay off. You can even view it with binoculars!

Neptune remains star-like in most backyard telescopes. The beginner may find it difficult to track this monster planet wondering the cold dark depths of the outer solar system but like Uranus it too can be found using binoculars! A challenge for sure but with the right star chart its well worth the effort! Don't be shy of the challenge!

I invite you now to join me this year in planetary exploration with the 2014 Seven Planets Challenge! Lets get out there and explore our neighborhood! On the next page you will find a worksheet with information including dates and times each planet is best viewed. While these are optimal dates for viewing in 2014 , keep in mind that you may observe each visible planet any time you wish. The optimal dates and times are simply there to help you maximize your opportunity for the best view possible. Good luck and may you all have clear skies and bright stars for the remainder of the year!

Article by Jason Shinn,  
ACA Publications Secretary.

# The Astronomy Club of Akron

## Seven Planets Challenge 2014

### Mercury

#### Dates of Greatest Elongation

**East of the Sun: (evening sky)**

January 31 at 10hrs UT. (18°)

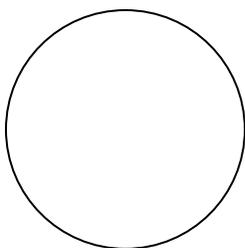
May 25 at 07hrs UT. (23°)

September 21 at 22hrs UT. (26°)

**West of the Sun: (morning sky)**

March 14 at 07hrs UT (28°)

Sketch the apparent disk of Mercury. Shade in the circle to the degree of any apparent phase. Record equipment used and the date and time of observation in UT.



### Venus

#### Date of Greatest Elongation

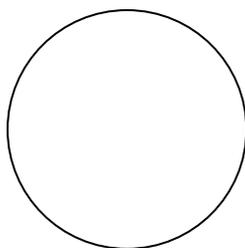
**West of the Sun: (morning sky)**

March 22 at 20hrs UT. (47°)

#### Greatest Illuminated Extent

February 15 at 09hrs UT.

Sketch the apparent disk of Venus. Shade in the circle to the degree of any apparent phase. Record equipment used and the date and time of observation in UT.

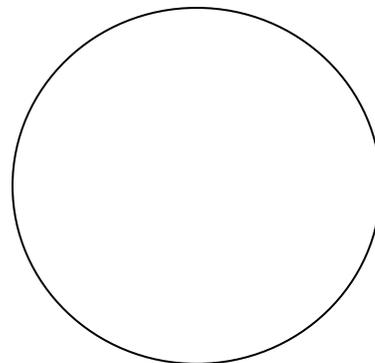


### Mars

#### Date of Opposition

April 8 at 21hrs UT.

Sketch the apparent disk of Mars. Use the circle provided to shade in any surface features you may observe. Record equipment used and the date and time of observation in UT.



### Jupiter

#### Date of Opposition

January 5 at 21hrs UT.

Sketch the Jupiter system. Orient any observed moons and cloud bands relative to the plane of the system. Use software, magazine, or internet resources to identify the moons. Record equipment used and the date and time of observation in UT.

### Saturn

#### Date of Opposition

May 10 at 18hrs UT.

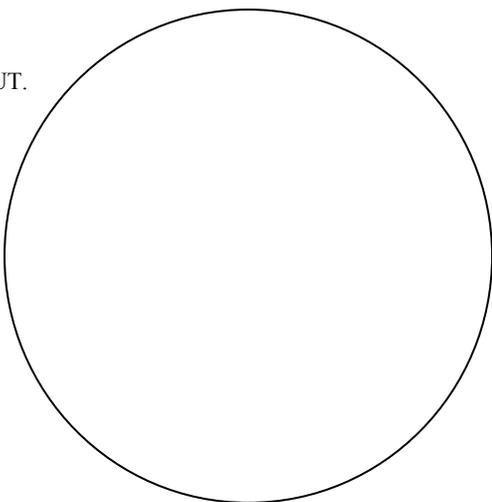
Sketch the Saturn system. Orient the rings and any observed moons relative to the plane of the system. Use software, magazine, or internet resources to identify the moons. Record equipment used and the date and time of observation in UT.

### Uranus

#### Date of Opposition

October 7 at 21hrs UT.

Use the circle to represent your field of view and sketch the location of Uranus among the background of stars. Record equipment used and the date and time of observation in UT.

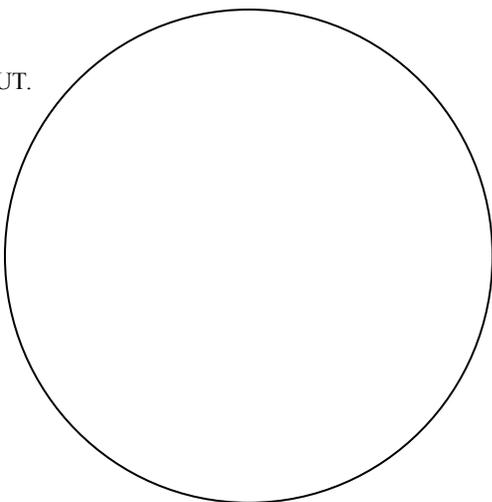


### Neptune

#### Date of Opposition

August 29 at 15hrs UT.

Use the circle to represent your field of view and sketch the location of Neptune among the background of stars. Record equipment used and the date and time of observation in UT.



## Observatory Report

By Ron Kalinoski



This morning (1/11), I took a ride to the observatory to inspect the site. After experiencing the polar vortex this week, I knew of one problem before leaving: frozen and exploded cans of soda left in the refrigerator. After cleaning up the mess, I inspected the telescope and saw a roof leak developed just in front of the telescope. It was raining heavily so the roof was still leaking; dripping to the floor missing the telescope by about one inch. I inspected the telescope and saw no evidence of water dripping on the telescope. I rotated the telescope away from the leak and re-adjusted the 60W light bulb we have focused on the electronics package to keep the unit above dew point temperature. This is the first roof leak we have experienced since November 3, 2007 when Fred Huffman and I sealed the roof with an aluminized fiber-filled roof sealant. Proceeding this project,



**Marissa Fanady views Jupiter's equatorial band structure and its four Galilean moons.**

we replaced roof nails with gasketed screws. No water has entered the observatory at ground level since the completion of the brick pad installation in October 2009. I'll stop by the observatory next week to silicone the roof leak area as a temporary fix to keep moisture out of

the observatory until we can make a permanent repair this Spring.

The observatory schedule is still being developed. Our first scheduled star party will be March 22nd. If weather permits, we may have an impromptu star party before that date. Our 2014 star party season promises to be a great one!

*Article by Ron Kalinoski,  
ACA Observatory Director.*



**Fred Fry sets up his 15 inch Dobsonian Telescope at a 2013 star party.**

### NEW IMAGES

(Page 9)

By Bob Benedict

Wide field Comet ISON the morning of November 20. Spica is in the upper right, Mercury in the lower left, ISON is the blue-green dot in between. Shot with a Canon Powershot SX40 from the Munroe Road School parking lot in Tallmadge.

# NEW IMAGES



by Bob Benedict

# THE ASTRONOMY CLUB OF AKRON JANUARY 2014 ACTIVITIES CALENDAR

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			New Moon 11:14UT Moon at perigee (closest) at 21h UT. 	<b>2</b> QUADRANTID METEOR SHOWER PEAKS JAN 2-3		Earth at perihelion (closest) at 12h UT.
5 Jupiter at opposition at 21h UT.	6	7	8 First Quarter 3:39UT 	9	10	11
12	13	14	15 Full Moon 4:52UT Moon at apogee (farthest) 02h UT. 	16	17	18
19	20	21	22	23	24 Last Quarter 5:19UT	25
26	27	28	29	30 New Moon 21:39UT Moon at perigee (closest) at 10h UT. 	31 Mercury greatest elongation, evening sky 10h UT. (18°) 	AKRON, OH SUNRISE JAN 1 7:51AM EST JAN 31 7:38AM EST SUNSET JAN 1 5:08PM EST JAN 31 5:42PM EST

THE ASTRONOMY CLUB OF AKRON

# FEBRUARY 2014 ACTIVITIES CALENDAR

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						<b>1</b>
	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b> First Quarter 19:22UT	<b>7</b>
	<b>9</b>	<b>10</b>	<b>11</b> Moon at apogee (farthest) 05h UT.	<b>12</b>	<b>13</b> Full Moon 23:53UT	<b>15</b> Venus greatest illuminated extent at 9h UT.
	<b>16</b>	<b>17</b>	<b>18</b>	<b>19</b>	<b>20</b>	<b>21</b> Last Quarter 17:15UT Asteroid Pallas at opposition.
	<b>23</b>	<b>24</b>	<b>25</b>	<b>26</b>	<b>27</b> Moon at perigee (closest) at 20h UT.	<b>28</b> <b>AKRON, OH</b> <b>SUNRISE</b> FEB 1 7:37AM EST FEB 28 7:02AM EST <b>SUNSET</b> FEB 1 5:43PM EST FEB 28 6:16PM EST

# *The Night Sky*

*Newsletter of the Astronomy Club of Akron*

c/o Jason Shinn, Editor  
1025C Hemlock Hills Dr.  
Akron, OH 44313

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**The Astronomy Club of Akron**  
c/o Glenn Cameron  
8019 Glendevan St. NW  
Massillon, OH 44646-9018

Yes! I want to become a member of the Astronomy Club of Akron

[www.acaoh.org](http://www.acaoh.org)

(PLEASE PRINT)

NAME: \_\_\_\_\_ PHONE: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

CITY: \_\_\_\_\_ STATE: \_\_\_\_\_ ZIP: \_\_\_\_\_

EMAIL ADDRESS: \_\_\_\_\_

**Astronomy Club of Akron** annual memberships renew in the month of May.

ADULT (ages 18 and older) \_\_\_\$30.00

JUNIOR (ages 12 to 17) \_\_\_\_\_ \$15.00

ADDITIONAL ADULT member \_\_\_\$15.00

FAMILY MEMBERSHIP \_\_\_\_\_ \$40.00

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