

# Stars over Sisters

By Chayce Sprout & Alex Burroughs

Keep an eye out in December for the star Algol in the constellation Perseus. Positioned high overhead during the evening hours, this object was known to early stargazers as the “demon” star. In fact, Algol is an Arabic word that means the “Demon’s Head.”

So, what did this star ever do to attract so much attention from ancient sky-watchers? Its odd behavior, compared with most other stars, is the answer.

The second-brightest star in Perseus, Algol is the first eclipsing binary star to be discovered. In this system, two stars rotate about a common center of gravity. So far, no big deal—many stars do that. But in Algol’s case, the orbital plane of these stars is directly in line with the earth. From our vantage point we see Algol change brightness as the two stars continually eclipse each other. At its brightest, Algol has a visual magnitude of 2.1 that dims to 3.4 magnitude. The cycle takes exactly 2 days, 20 hours and 49 minutes, and a change in brightness can be seen with the unaided eye over a period of just a few hours.

There’s an interesting bit of star-lore connected with Algol. It seems that Perseus the Hero was

tasked with rescuing the maiden Andromeda who was chained to rocks on the seashore of Aethiopia as a sacrifice to Cetus the Sea Monster. To ensure his success, Perseus had to first do battle with Medusa, the hideous serpent-headed gorgon whose stare turned hapless onlookers to stone.

Using a mirror to deflect her gaze, Perseus was able to slay Medusa by severing her head. The Hero then directed Medusa’s terrible appearance toward Cetus, permanently paralyzing the monster, allowing for the rescue of Andromeda. Algol’s variable brightness is sometimes associated with the evil, winking eye of Medusa.

The winter solstice is responsible for the shortest day and the longest night of the year in the northern hemisphere. It is caused by the fact that the earth’s North Pole is tilted away from the sun. This year the alignment will occur on December 21 at 2:44 a.m. PST.

The Geminids is a meteor shower that, instead of being associated with a comet, originates from an asteroid known as 3200 Phaethon that takes about 1.4 years to orbit the sun. These meteors are always seen between December 4 and December 17. This year the shower will peak in the early morning

of December 14. Normally the shower is one of best of the year, yielding about 120 meteors per hour, but this time around a full moon will mask many of them.

The reason this shower is called the Geminids is that the meteors appear to emanate from the constellation Gemini.

The three inner planets Mercury, Venus and Mars appear in the western sky during December. At the beginning of the month Mercury can be seen about half an hour after sunset low on the horizon. The smallest planet becomes somewhat easier to observe as it pulls farther away from the sun throughout the first half of the month, then heads back toward the sun thereafter.

Above and to the left of Mercury is brilliant Venus, and even higher and farther to the left is Mars. These planets form a slanting straight line.

Jupiter is in the constellation of Virgo and can be best viewed about four hours before sunrise. Saturn is too close to the sun this month to see, but will reappear in the east at sunrise right around the New Year.

The month will start off with a waxing moon, becoming full on December 13. From here the moon is on the wane before going dark on December 28.

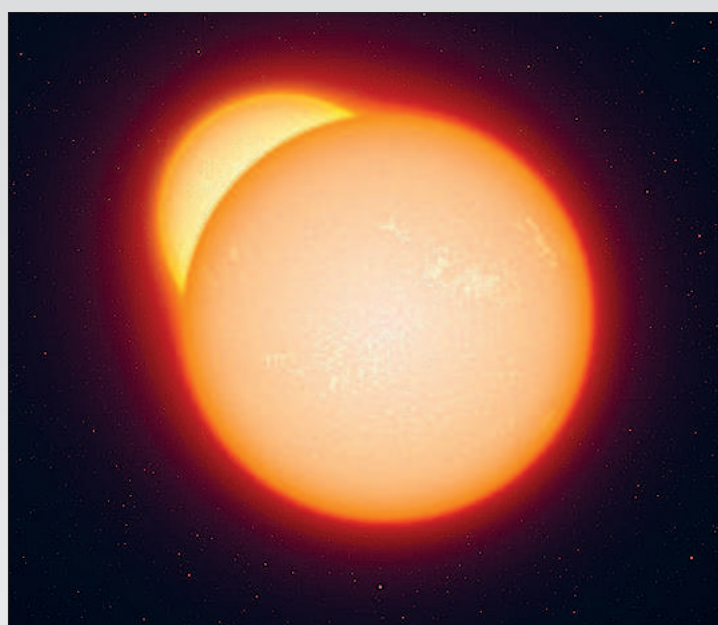


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Artist’s impression of an eclipsing binary star system, such as Algol in the constellation of Perseus.

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### 8 Tips to Improve Your Financial Communication

What makes a couple successful in their financial relationship? Ameriprise Financial surveyed over 1,500 couples (those married or living together for at least six months) to learn about their money conversations and how they make decisions. The results revealed eight ways you can improve the financial health of your relationship:

- Understand your partner’s money mindset. It’s normal to have differing views and habits about money, but that doesn’t mean you can’t agree on your financial goals. Couples who report being on the same page financially work to understand their partner’s approach to money and keep the lines of communication open.
- Make finances a priority and don’t give up. Couples who are willing to have the hard conversations and who work together to find financial harmony will reap the benefits over time. As you might expect, the study found that couples who had been together longer tend to have better communication and are on the same page when it comes to financial matters.
- Agree on financial goals. It’s tough to pool your money with someone who overspends or who isn’t willing to save for the vacation you’ve always dreamed about. Sharing financial goals does bring you closer together—or at least it’s one less thing to argue about. To make it easier to save, challenge yourselves to add a timeframe to each goal so you know what you’re working toward first.
- Assign and accept financial roles and responsibilities. Most couples split up tasks such as paying bills or monitoring investments. Clear responsibilities allow you to hold one another accountable without worrying if the cable bill was paid. However, be sure to work together on tasks such as retirement planning that requires close collaboration.
- Invest in your future together. Make it a priority to set aside a portion of your earnings for short- and long-term goals, including retirement. Know how much you collectively have in retirement savings—a surprising 23 percent of couples are unsure of this number. If you have kids, talk about how much you’d like to contribute to their college expenses so you can save accordingly.
- Set a spending limit. Spending habits were the leading cause of contention for couples. Consider setting a spending limit to ensure you’re on the same page as your partner regarding large expenditures. On average, couples said a purchase over \$400 should trigger a discussion.
- Understand that disagreeing is okay. According to the Ameriprise study, even couples who say they’re in financial harmony disagree on financial matters. What’s important isn’t that the partners don’t always agree, but that 82 percent resolve their issues and move on.
- Enlist a professional to solidify your financial plan. When you need an objective opinion – or a deciding vote – meet with a financial advisor. Together the three of you can create a financial plan that meets your specific needs as a couple.

Ultimately, it feels good when you are in sync with your partner regarding financial decisions and can work together toward managing your finances. Couples who actively work on improving their financial relationship will likely be less frustrated over money matters and may even feel better about their relationship overall.

The Ameriprise study on couples and money was created by Ameriprise Financial, Inc. and conducted online June 14-July 14, 2016 by Artemis Strategy Group among 1,514 U.S. opposite and same sex couples (married or living together for at least six months with shared financial responsibility) between the ages of 25-70 with at least \$25,000 in investable assets.

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