

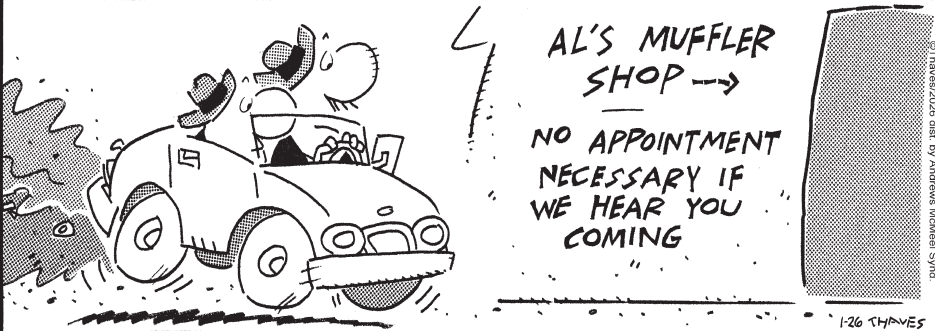
GARFIELD



ROSE IS ROSE



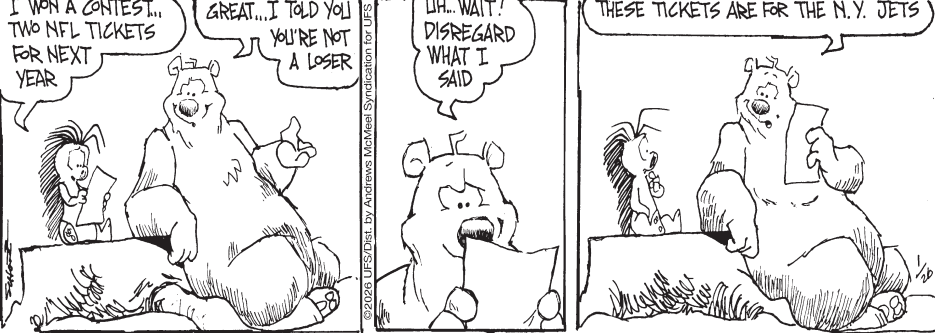
FRANK & ERNEST



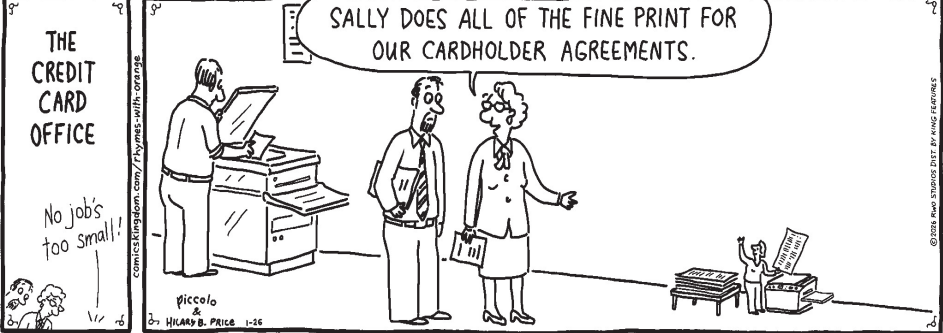
MUTTS



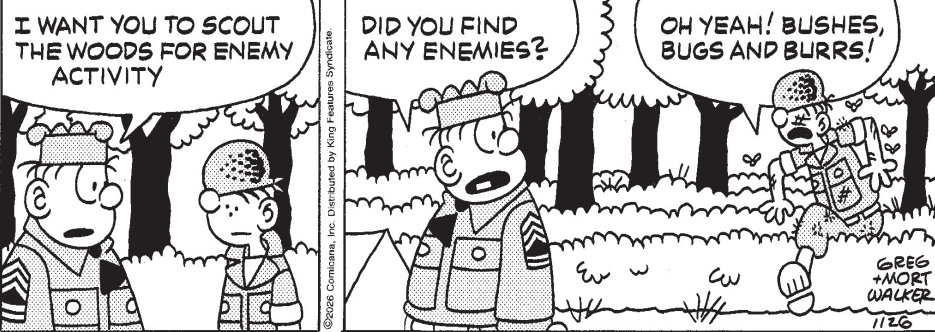
THE GRIZZWELLS



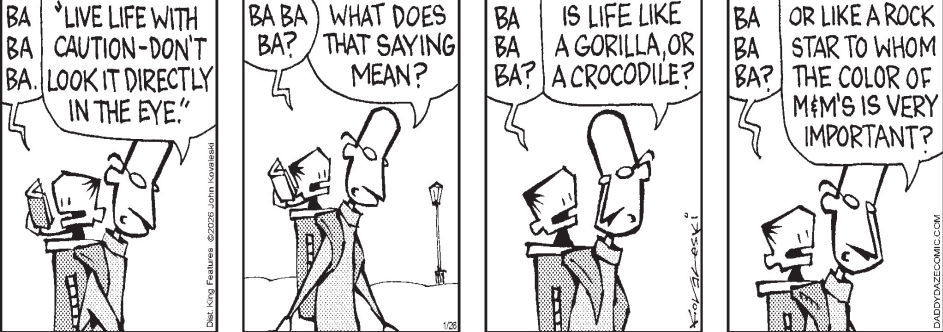
RHYMES WITH ORANGE



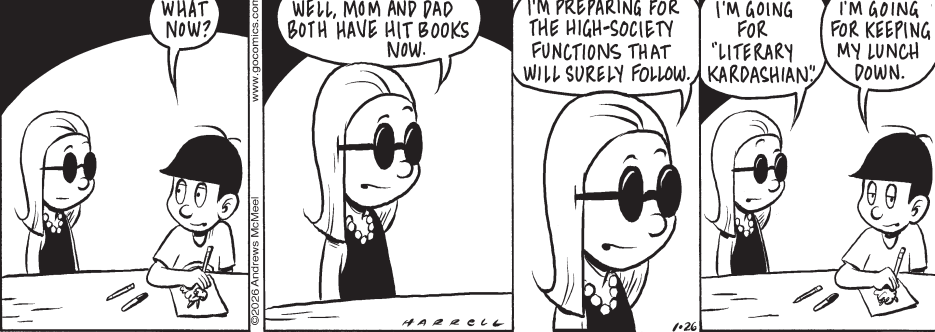
BEETLE BAILEY



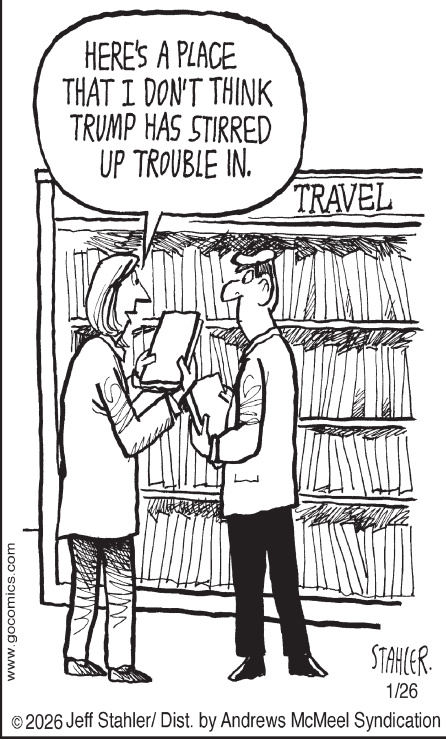
DADDY DAZE



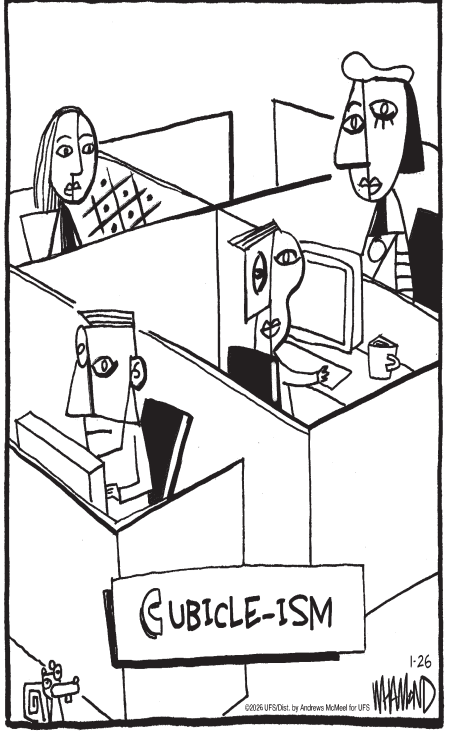
ADAM DAILIES



MODERATELY CONFUSED



REALITY CHECK



THE BORN LOSER



Stars form inside unimaginably huge clouds of cold gas and dust called "molecular clouds," or "nebulae." Gas molecules and dust within a nebula are pulled toward each other by the force of gravity. Eventually, the nebula condenses into several regions. These dense areas continue to pack tightly, creating heat. Now called a "protostar," these dense areas will continue to collect matter and heat up over hundreds of thousands of years. When the protostar reaches a temperature of about 10 million °C (18 million °F) it will begin nuclear fusion and become a star.

A STAR IS BORN

A protostar is said to "ignite" the moment it becomes hot enough and dense enough to begin the process of nuclear fusion at its core.

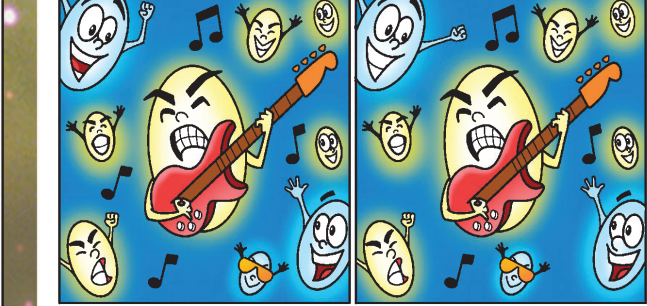
After ignition, a new star becomes stable as the outward push from nuclear fusion is balanced by the inward pull of gravity.

LUCKY STARS

The amount of mass within a star determines the star's lifespan. Smaller stars may live for hundreds of billions of years. Medium-size stars, like our sun, will live for around 10 billion years. While extremely massive stars will live for only a few million years before exploding in a supernova.

ROCK STAR

Can you spot all six differences between these two scenes?



Stars tend to form in groups.

GAME ANSWERS: 1. Neck of guitar is shorter. 2. Star is missing. 3. Note is different. 4. Mouth is different. 5. Nose is larger. 6. Arm is different.

When a protostar does not become hot enough to ignite, the result is a small, faint "brown dwarf" star.

Shortcuts[®]
by jeff harris
SHINING A LIGHT ON THE

BIRTH OF STARS

WORD SEARCH

Can you find the hidden words? Search carefully because some words are backward or diagonal.

PROTOSTAR DUST HUGE
NEBULA MILKY PACK
FUSION BORN WAY
CLOUD FORM BOB
FORCE HEAT HOT
DENSE CORE GAS
ARTEMIS LAUNCH
CHAIRROLL LEON
WALTEROSUBARN
AKPASTNFBPOET
YESFORCEBIBA
DOTH IPTLNICEK
EHOSEODOGGYCK
NNUSHERUREAST
SFOGGYADSPOT
EVEREADBOOTHER

Nebulae are sometimes referred to as "star nurseries."

A single nebula may be home to hundreds of protostars.

What happened when the two nebulae bumped heads? They saw stars.

Star-forming nebulae can measure hundreds of light-years in diameter.

About two or three new stars are created in our Milky Way galaxy every year.

When a protostar does not become hot enough to ignite, the result is a small, faint "brown dwarf" star.

This edition of Shortcuts is sponsored by Dust N. Henderson.

Stranger things happen when stars are born.

What is a protostar's favorite Beatles song? "Come Together."

How can you tell an astronomer has discovered a nebula? She has stars in her eyes.

As a protostar condenses, it begins to spin. This creates a spinning disk of debris around the protostar. The disk eventually condenses into planets that orbit the new star.

Scientists have already identified more than 2,000 star-forming nebulae in our Milky Way galaxy.

What award does a protostar receive when it becomes a star? A constellation prize.