

New research makes waves



Between classes, tests, extracurricular activities and having a social life, few students have time to watch the news, let alone keep up with the latest scientific discoveries.

Science research is an incredibly varied field, and important discoveries are being made every day. A few of these recent discoveries include gravitational waves, using plant xylem as a water filter and a device the size of a corn kernel that will let you know when your milk is spoiled.

The discovery of gravitational waves may seem frivolous to the casual observer, but this discovery helps to validate the theory of inflation.

According to Popular Science Magazine, gravitational waves are ripples in space-time that are the remains of inflation or the exponential expansion of the universe just moments after the Big Bang occurred.

A large telescope near the South Pole, referred to as the Background Imaging of Cosmic Extragalactic Polarization, detected these gravitational waves.

When people think of water filters, the image of complicated hoses, iodine tablets or tediously boiling water might pop into their heads. Researchers at the Massachusetts Institute of Technology have discovered a filter that is cheaper, easier to use and readily available plant xylem.

A xylem is the fibrous material in a plant that transports water. According to the sci-

entific article published by Public Library of Science, the researchers cut off the branch of a conifer tree and stripped it of its bark. After this, they fit the plant material into a tube and forced water through it at 0.5 to 5 pounds per square inch.

They found that the xylem filter was able to filter four liters of water per day, enough for an average consumer.

Another interesting discovery was the xylem was able to filter out 99.9 percent of bacteria in a contaminated sample.

At the national meeting and exposition of the American Chemical Society in Dallas this week, Chinese researchers presented a small tag that can be placed on the outside of a container and accurately tell you when a perishable item has expired.

According to the Business Insider, the small tag originally is red and becomes a vibrant green color once the perishable item has expired. This reaction is based on the temperature and length of time the product is a certain temperature.

One of the most important aspects of these new tags is they are inexpensive to produce — less than one cent per tag — and they can be used on a number of perishable items.

The world of science is diverse and constantly evolving. New research and discoveries are being announced daily, so every once in a while look and see what is changing in the world of science.

CATCH UP WITH THE LATEST SCIENTIFIC DISCOVERIES

GRAVITATIONAL WAVES

- Gravitational waves were first created during the first “billionth of a billionth of a billionth of a second after the Big Bang” (according to Discovery News).
- Stephen Hawking claims he won a bet against another scientist, Neil Turok, when the discovery of gravitational waves was announced (according to The Guardian).
- These gravitational waves are the first direct evidence of the dramatic expansion of the universe or the Big Bang (according to Popular Science).

PLANT XYLEM

- The xylem can filter out contaminants smaller than 100 nanometers (according to PLOS ONE).
- The amount of water filtered by one plant xylem during a day (4 L/day) should be sufficient for the normal consumer of water (according to PLOS ONE).
- “Xylem filters potentially could be produced locally and inexpensively, and disposed of easily owing to their biodegradability” (according to PLOS ONE article).

TIME TAGS

- A single tag costs less than one cent to produce (according to Business Insider).
- It is believed the tags could be used on perishable items, such as milk, salad dressing or yogurt (according to Business Insider).
- The tags are the size of a corn kernel, are gummy-like, and can be placed directly on the outside of a container (according to Business Insider).

Seven tips to live smartly off-campus

BY GRACE BUECKENDORF
Staff Reporter

While there are copious on-campus living options, some students opt to move off-campus during their junior or senior year for more freedom. However, as the saying goes, with increased freedom comes increased responsibility. Living off-campus brings with it a real-world experience, complete with utilities, repairs and bills. Off-campus options are vast and it can be confusing to try and find a place that fits all of your needs. Here is a list of things to keep in mind as you house-hunt in Kirksville.

1) Utilities: Utilities can be expensive. As such, it is important to ascertain whether or not the cost is included in your rent. For instance, if the rent is really cheap but you have to pay your own utilities, the costs still can stack up. If you pay your own utilities and live in an older home with older appliances and windows, the utility costs can be exceptionally pricey, Heritage Housing realtor Rick Bachman said.

“A winter like the one we are currently in could cause a dramatic increase in heating as well as summer cooling in hot summers,” Bachman said. “You may have to pay a little more rent [if you choose a nicer place], but during the long run you will most likely save some money.”

2) Pets: It can be fun to acquire an adorable bunny, kitten or puppy at some point during your college career, but keep in mind the extra costs that come with it.

“A lot more landlords take pets now but require you to pay \$50.00 to \$75.00 a month on top of your rent,” Bachman said.

Additionally, there usually is a weight limit of 30-35 pounds if the landlord does allow pets, and normal noise levels still are enforced.

“So, if Fido is a barker, that could be a big concern,” Bachman said.

3) Maintenance: Unless you plan on lugging a lawnmower to Kirksville in your

STEPS
to take as you move off campus

- 1 Educate yourself regarding the local rental market.
- 2 Evaluate your housing needs.
- 3 Check the cost.
- 4 Choose your roommates.
- 5 Know the rules.
- 6 Understand your responsibilities.
- 7 Talk to your parents.
- 8 Carefully read the lease.
- 9 Evaluating the property.
- 10 Make the commitment.

Source: <http://saffairs.truman.edu/rentals/>

two-door car, it might be important to figure out who is responsible for basic maintenance, including mowing the lawn. Some landlords include lawn-mowing services, while others do not. Either way, these little tasks are important to consider when adding up the final cost of a house or apartment. Heritage House realtor Pam Danner

said it is important to consider whether the tenant or landlord is responsible for winter maintenance as well.

“If [students] leave town, particularly during the winter months, they are responsible to keep the unit heated to keep the water lines from freezing,” Bachman said. “If water lines freeze and burst then

the tenant is liable for all damages if they turned off the heat.”

4) Laundry: Laundry is not some students’ first priority, opting to take the green route and recycle clothes until they can go home and have their mothers do it. However, for those of us who like to have clean socks, it’s something we have to consider: While maybe you find it fun to lug your laundry once a week to a laundromat with a heavy sack of coins, it’s more convenient to have a washer and dryer in your home. Bachman said this luxury hikes the rent up a little bit, but definitely makes life easier.

5) Partying: Especially in apartments, noise levels are strict. As such, it might not be the wisest decision to throw a rager every night. In the wise words of Bachman, “Try to keep the partying to a minimum.”

6) Key Pick Up: Bachman said during his experience, college students often forget to set up a key pick-up date. They show up in Kirksville only to find that their landlord isn’t in town, leaving them without anywhere to stay for a couple nights. Make sure to call at least a week ahead of when you need to come back to school to arrange a time and place to meet the landlord and pick up your key.

7) Picking roommates: Choosing who to room with can be a difficult decision, especially when paying rent and buying groceries come into play. Great friends can sometimes translate into terrible roommates.

Senior Abby Nehrkorn said, “Just make sure you know the person and their habits more than just whether they’re fun.” She advised to take personality styles into account as well as cleaning habits and organization. Picking someone who is reliable with rent and prefers the same level of cleanliness as you are two absolute musts in a roommate.

“[Those qualities] can really differ and can actually hurt a relationship or a friendship,” she said.

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