Seven courses of science for Thanksgiving

A familiar Thanksgiving routine goes something like this: Eat a big meal centered on a deliciously stuffed turkey, retire to the couch, flip on the TV and promptly fall asleep. No doubt the holiday festivities can be exhausting, but scientists say it's a fallacy to blame the post-meal nap on the bird. True, turkey contains tryptophan, an amino acid that produces the brain chemical serotonin, known to induce calm and sleepiness. But the amount of tryptophan in turkey is minuscule, and other amino acids in the Thanksgiving meal actually block tryptophan's entry to the brain. The nap, scientists say, probably has more to do with missing out on sleep, consuming alcohol and working hard to digest the typical carb-loaded Thanksgiving meal.

1. What does the word “fallacy” mean in paragraph 1? Use context clues to help you!

2. What is the real reason people feel tired after their Thanksgiving meal?

Pat Wellenbach / AP

How science built a 'better' turkey

"White meat or dark meat?" the turkey carver asks. Most Americans reply white. To meet the demand for white meat, industry put science to work to create the big-breasted birds at the center of most holiday feasts today. Only big-breasted birds are bred, which passes on the desired genetic trait to offspring. The chicks are then fed a diet engineered to promote breast growth. Today's farmed turkeys have breasts so big that it's hard for the birds to stand

up straight, Turned-off consumers are turning to heritage, free-range and organic turkeys, which are gobbling up market share.

How science built a better balloon

Brendan Mcdermid / Reuters

As the turkey cooks in the oven, millions of Americans will tune in to the annual Macy's Thanksgiving Day Parade to see the Energizer Bunny and other larger-than-life characters soar above the streets of New York City. According to John Piper, head parade designer, a scientific process guides the balloons' journey from the initial sketches and models made of steel and clay to the construction and test flights. Each balloon is a series of chambers engineered to hold the desired form. The individual characters contain 10,000 to 16,000 square feet of helium, a gas less dense than air that allows the balloons to float. About 50 people hold on to lines to keep the balloons tethered to the ground along the parade route.

3. Why do the balloons stay afloat as they parade down NYC streets?

Knowing the turkey is done

When's the turkey done? Millions of cooks will wait for a little red thermometer to pop up, a triumphant sign the bird is ready to eat. How does this work, and should it be trusted? The science of the pop-up thermometer is fairly straightforward. A drop of solder holds a spring-loaded plunger in the down position. When the turkey heats up to 185 degrees Fahrenheit, the solder melts and the plunger pops up. The apparatus is encased in plastic to keep the metal from contaminating the bird.

But to prevent an undercooked bird from contaminating you, the U.S. Department of Agriculture recommends also taking the turkey's temperature with a standard food thermometer in several places, including the innermost part of the thigh. At a minimum, the agency says a turkey should be cooked to 165 degrees F.

4. What risk does an “undercooked” turkey pose?

Return of the wild turkeys

National Wild Turkey Federation

Each year, hunters bag nearly 1 million wild turkeys, according to figures from the National Wild Turkey Federation. In the 1930s, such a harvest would have spelled the wild bird's extinction: They numbered just 30,000 back then, due to decades of habitat destruction and unregulated hunting. A coordinated conservation program, started in 1937, has led to a stunning reversal that continues to this day. For example, wildlife agencies trap wild turkeys where populations are abundant and transfer them to regions with suitable habitat but few birds. The wild turkey population currently stands at about 7 million.

5. In your own words, describe what a “conservation program” is.

Turkeys smarter than they appear

Justin Sullivan / Getty Images file

Being called a turkey is almost always an insult, even on Thanksgiving. The birds, after all, have a reputation for stupidity. While scientists say flightless farmed turkeys like these lack the survival skills of their wild cousins, they aren't as dumb as they appear. For example, the oft-told story that turkeys will cock their head skyward and stare at falling rain until they drown stems from a misunderstanding, according to Thomas Savage, an animal scientist at Oregon State University. His research shows that some turkeys have a genetically caused nervous disorder that causes them to cock their heads and hold the position for a minute or two. "I've always viewed turkeys as smart animals with personality and character and keen awareness of their surroundings," he said in a media statement. "The dumb tag simply doesn't fit."

6. Are turkeys smart? Explain!

Saying 'thanks' is good for your health

A U.S. soldier dressed as a pilgrim enjoys a Thanksgiving meal in Baghdad, Iraq.

David Furst / AFP - Getty Images

Thanksgiving compels many of us to express gratitude for our family and friends, a place to live, and food to eat. According to Robert Emmons, a psychology professor at the University of California at Davis, saying thanks every day, not just on Thanksgiving, is good for our health. His research shows that grateful people have more energy, sleep better, exercise more, have lower blood pressure and are better-liked by others. A good habit, he says, is to write down five things for which you're grateful before bed each night.

Try it! Write down 5 things you are grateful for as we celebrate Thanksgiving Day in 2025:
