



A newborn chick stands by an egg beginning to hatch during the Teton Middle School Science Fair Thursday night. Cousins Kelton and Victoria Kearsley demonstrated the need to rotate eggs during incubation in their Rotating Eggs science-fair project. Their project took first place in the fair. The egg marked NR was one of five not rotated, and didn't hatch.

## chicks, pH and fingerprints

top science fair exhibits

Story and photos by Ken Levy  
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Why didn't the students rotate some chicken eggs?

To see if they would hatch. Sadly, they didn't, but they proved a point.

Cousins Kelton and Victoria Kearsley demonstrated the need to rotate eggs during incubation in their Rotating Eggs science-fair project at Teton Middle School Thursday night.

The seventh-graders' project featured an incubator filled with chicken eggs and explained why the eggs have to be rotated for them to hatch. Five eggs not rotated ended up

with the yolk stuck in position, Kelton said, and the embryo was stuck in position as well.

"The theory is if you rotate the egg then the yolk and embryo rotate with it, and it gives it a fresh spot every time you rotate it to keep on growing," said Kelton.

Their demonstration, which included chicks hatching from their shells during the fair, won first place and the opportunity to compete in a regional science-fair competition in Ogden, Utah March 21, according to George Bates, science teacher at TMS.

"We had about 135 students who participated in the science fair with 75 different projects," said Bates. Judges for the event were John Jenson and Jack Liebenthal.

Eighth-graders Rachel Durtschi



Eighth-graders Rachel Durtschi and Rebekah Bernal decided to participate in the Teton Middle School Science Fair Thursday, even though it was only required of the seventh-grade students. They demonstrated how to determine the pH of different household chemicals, using the liquid from boiled cabbage leaves, and took second place.

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Bernal said they used a red cabbage and peeled off its leaves, then boiled them for 20-30 minutes. They strained the resulting bluish liquid to get rid of all the leaves, and used an



Emily Blair exhibited the results of her research in the Goldfish Project at the Teton Middle School science fair Thursday.

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## Science fair

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eyedropper to drop the liquid into Woolite, glass and oven cleaners, sore throat mix, dishwasher detergent, vinegar, 7-Up and Clearasil. The different chemicals, reacting with the cabbage juice, turned colors according to their pH.

“The Woolite made a purpleness,” she said. The original color of CLR — Calcium Lime Rust cleaner— is yellow, but became red with the cabbage coloring.

“It’s kind of nice to know that CLR and oven cleaner are not very safe. Anything high or low on the pH scale shows that it’s very dangerous,” said Bernal.

April Smothermon took third place with Inherited Fingerprints, which compared prints of related people for similarities, and Aileen Vasquez, Esmeralda Gonzalez, Dylan Hoopes, Cory Hill and Clayton Campbell took honorable mentions.

Hoopes, Hill and Campbell mixed baking soda and vinegar to make carbon dioxide to show how it is used to put out fires. In this case, the gas was used to extinguish burning candles.

“It’s heavier than air, so when you pour it out, it’ll put out the candles,” Campbell said.

Tom Bates and James Raube built a project explaining tornadoes, including the Fujita Scale of tornado intensity, which measures how powerful tornadoes can be.

“Our hypothesis was that you can reenact tornadoes with hot and cold water,” said Raube. “When we separated the two, they actually swirled when they were passing each other, making a little bit of a tornado.”

“We proved that hot water or air rises, and cold water or air has more density and sinks,” said Bates.

Bryer Beard and Connor Marshall built a Van de Graaff generator named for Robert J. Van de Graaff. A belt attached to the generator base of the device carries static electricity to the metallic top, which catches the static electricity and electrons from the belt, Marshall said. Once inside the cone, the electricity can produce a mild static-electricity shock.

“You could even light up a light bulb, but you have to have converters and wires and all that good stuff,” said Beard.

Cousins Kimberly and Alex Olivas created lava lamps to show people how reactions of the molecules of water and oil don’t mix. They added food coloring and Alka Seltzer, which added bubbles and carries up the heavy food-



TVN Photos/Ken Levy

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colored water.

“When the air goes out of the tube the food-colored water goes down,” Alex said.

“We had different measuring amounts to see how the reaction works on each one of them,” Kimberly said.

Nelson Paradis developed a three-way switch for his science project.

“It’s basically a normal switch in your house, except there’s two points where you can turn it off or on,” Paradis said. “It’s a convenient way to travel around your house. If you’re walking up the stairs at night you can turn on the light to see where you’re going and when you get to the top of the stairs you can turn it off. You can save a lot of energy.”

Paradis developed the switch system using all recycled materials.

Alex Jolley demonstrated how air currents work with what he called the Match Trick. He placed a lit match inside a small funnel and blew on it. Instead of the flame going out, it was sucked back into the funnel by the air currents around it and the dead-air space in the middle.

Emily Blair developed the Goldfish Project. She got six goldfish and placed them in glass jars, then fed them different kinds of fish food for about three weeks. The first pair got regular goldfish food, while the second got tropical fish food and the third ate beta fish food.

“I observed them to see how their actions were affected by the food I fed them. The goldfish that were fed beta

food were a little more excited to eat, but otherwise there was really no change in the way they acted.”

Eighth-grader Riley Nelson developed a project to detect solar flares in space. He suspended a magnet on thread in a large pop bottle, and the magnet pointed north, as usual.

“But when a solar flare occurs and reaches Earth’s atmosphere [the magnet] will turn toward the iron particles inside the solar flare.”

If solar flares are big enough, he said, “they can knock out all of our electronics and kill our satellites,” he said. “But that’s not due to happen until 2012.”

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