

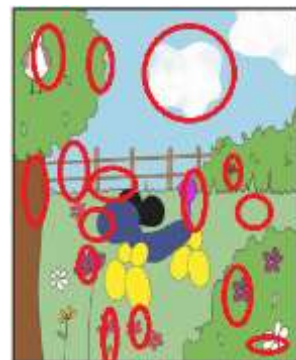
7/3/2023 (#11 this year)

The high school festival is this week. Are you excited? I'm looking forward to it. I can hear everybody getting ready every day after school. You are all working hard. The performance shows are always very good. I'm looking forward to seeing what you each do in the classroom as well. Some classes will be outside, so I hope the weather is ok. The junior high school students will have a lot to do as well. Each grade is going to a different place because they won't be able to do classes while the high school are having their festival. The first grade are going to JICA, the second grade are going to Upopoi, and the third grade are going to Otaru.



12 differences

Last week's answer



### Something you didn't know about glue:

1. The first glue<sup>1</sup> in the world was made from heating birch bark tar<sup>2</sup>. It was made about 50,000 years ago and used for sticking tools or decorations.
2. Superglue<sup>3</sup> was invented by accident. Dr. Harry Coover was trying to make clear plastic gunsights<sup>4</sup> in World War 2 and he accidentally created superglue.
3. The glue stick was invented by a German company that looked at lipstick and thought it would be a good idea for glue.
4. The world's strongest glue is Delo Monpox. 3 grams of the glue was able to stick and lift 17.5 tons!
5. These days all glue is synthetic<sup>5</sup>.

### New, Stronger Tape

Last week, Professor Michael Bartlett at Virginia Tech, a university in America, announced that he and his team had worked out a way to make sticky tape much stronger. His design uses kirigami, the Japanese art of paper cutting. The problem with sticky tape is that if you make the adhesive<sup>6</sup> stronger, the tape is stronger, but it is very difficult to peel off. It will leave a lot of glue on the thing you stuck it to. People want a sticky tape that is very strong, but that is also easy to pull off. This seemed impossible until Michael Bartlett and his team worked on the problem. Mr. Bartlett knew about kirigami



and how cutting a piece of paper in a certain way can change its properties<sup>7</sup>. His team used a laser to cut three sides of a rectangle<sup>8</sup> into the tape and repeated the pattern all over the tape. They used a strong adhesive on the tape. When you pull the tape off, you pull in the direction of the rectangle. That means you pull towards the uncut side<sup>9</sup> of the rectangle and the tape comes off very easily. However, if you pull it the other way, all of the rectangles stick<sup>10</sup> to the surface and the cuts in the tape mean that the tape will only come off if you turn it around. The team found out that this made it 60 times stronger than normal tape and it was also very easy to remove.

1.glue のり 2.birch bark tar 樺焦油 3.superglue 接着剤 4.gunsight 照準器 5.synthetic 人工の 6.adhesive 粘着性物質 7.property 特性 8.rectangle 長方形 9.uncut side 切ってない側 10.stick くっつける





### World record

Have you ever heard of free diving? It is a sport where you dive as deep as you can in the sea without using any equipment<sup>1</sup>, such as SCUBA gear. It must be wonderfully quiet down there, but also very scary. There are two types of free diving record. The first type uses a weight and a balloon. The diver is pulled down by a weight and then floats back up holding a balloon. The world record for the deepest weight and balloon free dive is 253.2 meters and it is held by Herbert Nitsch. The second type of record is one where the person has to swim down and back up without any help. The record for that is also held by Herbert Nitsch and it is 111 m. That is incredible! An Olympic swimming pool is 50 m long. So, he swam the length of 2 Olympic swimming pools down into the sea, and then he swam 2 Olympic swimming pools back up again! He is also able to hold his breath for 9 minutes!

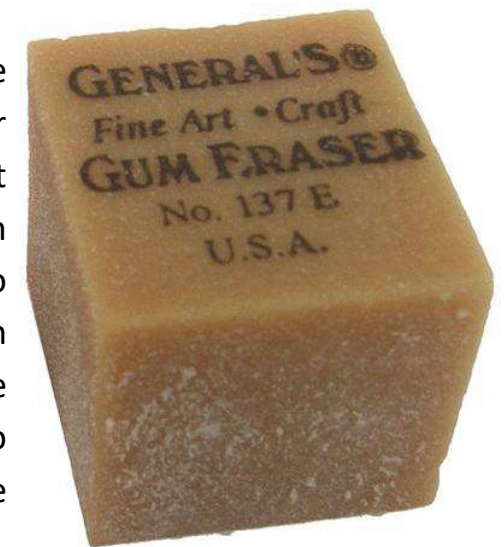


Yesterday is not ours to recover<sup>2</sup>, but tomorrow is ours to win or lose.

– Lyndon B. Johnson

### An invention – the eraser

You all use pencils at school. When I was a student we had to use pens. If we made a mistake, we just crossed it out<sup>3</sup>, or tried to use an eraser for pen ink that just tore up<sup>4</sup> the paper in my notebook. When you make mistakes, you use your eraser to erase the mistake and start again. So, when was the eraser invented? Well, people haven't been using pencils for that long, so there wasn't much need for an eraser. The pencil was invented in 1555 and they became common in about 1850. Before the eraser was invented, people used many different things to erase their mistakes. Some people even used bread! In 1770, an engineer<sup>5</sup> called Edward Naime accidentally<sup>6</sup> picked up a piece of rubber<sup>7</sup> instead of a piece of bread and realized that it was better at erasing pencil. He started to sell his rubber erasers, but rubber was very expensive. He sold his erasers for about 2,500 yen each. That doesn't sound very expensive, but that was about the daily wage<sup>8</sup> of a worker in 1770. Only natural rubber was available, but natural rubber perishes<sup>9</sup>. This was fixed by Charles Goodyear in 1839 when he discovered vulcanization<sup>10</sup>. In 1858, an



American called Hymen Lipman invented the eraser on a pencil. Rubber was still natural and erasers only became cheaper after World War 2 when synthetic rubber was invented. Now, erasers are very cheap.

← a rubber tree

- 1.equipment 道具 2.recover 取り戻す 3.cross out 線で消す 4.tear up 敗れる  
5.engineer 工学者 6.accidentally 思わず 7.rubber ゴム 8.daily wage 日給 9.perish ゴムが固くなる 10.vulcanization 加硫