Paired Texts

LEXILE 800L-900L

SEEING DOUBLE

If you could use science to make an exact copy of your favorite pet, would you do it? BY TOD OLSON

There's been a death in the family. Your dog Max has passed away. You loved him more than anything, and you're not sure what to do now.

You're definitely not interested in getting a new dog. He wouldn't have that little brown spot above his eye, and he wouldn't rub his head against your leg the same way. No dog could replace Max.

But suppose you could have an exact copy of Max. Yes, the brown spot would be there, and he might even rub his head against you too. Believe it or not, he would be made from a piece of Max himself!

VOCABULARY

cloning: growing a plant or animal from one cell of its parent

cell: a tiny, basic part of a plant or animal; all living things are made up of cells

embryo: an unborn human or animal in the earliest stages of growth

productive: doing or achieving a lot

breed: mate two animals to produce babies

Making Copies

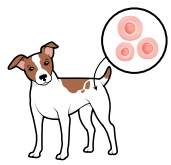
If this were a horror movie, the creepy music would start now. Then the evil laugh would rise from the basement of the castle. Finally, the monster dog would appear in the glowing moonlight.

But none of that is happening in this story. This is a story about science. Even the part about making a new dog from a piece of Max is something that can really happen in a laboratory. Scientists today can make exact copies of animals through a process called **cloning**, and people are using this

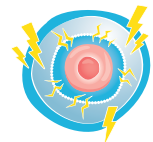
JOHN DANIELS/ARDEA


ORIGINAL
CLONE
VIDEO
GO TO WEB VIEW

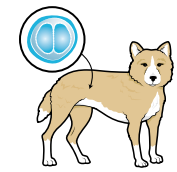
HOW DOES CLONING WORK?



1 Scientists cut a small piece of skin from a dog. From that piece of skin, they take a single cell.



2 In a lab, scientists combine the cell and an egg from another dog. Together the cell and egg form an embryo.



3 The embryo is placed inside another female dog. It grows inside its new "mother."

4 About two months later, a puppy is born. This puppy is a clone.

process to re-create the pets they loved.

Here's how cloning works: Scientists cut a small piece of skin from the animal that is to be cloned, like Max the dog. From that piece of skin, the scientists take a single **cell**. Then they remove an egg from a female dog. In a lab, the scientists combine the egg and the cell. If everything proceeds properly, the egg and the cell turn into an **embryo**, which is the very beginning of growth for humans and animals.

In the next step, the embryo is placed inside another female dog. It grows inside its new "mother," and about two months later, a puppy is born. That puppy is an exact copy of the original dog. And you have your new pet: Max 2.

Cloned Cows

Although scientists have known how to clone animals for about 20 years, there aren't many clones walking around. The process is complicated, succeeds only about 20 percent of the time, and is costly. The Texas company ViaGen Pets charges $50,000 to clone a dog and $25,000 to clone a cat.

But cloning isn't just for grieving pet owners. Companies like Trans Ova Genetics in Iowa clone mostly farm animals, like cows and pigs. On every farm, some animals are much more **productive** than others. For example, certain cows make more milk than other cows. Some farmers clone their best cows and then **breed** the clones. The farmers hope that the calves born from the highly productive clones will produce as much milk as their mothers.

Cloning a cow costs about $20,000. To some farmers, the high cost is worth every penny, because a cloned cow can help a farm stay in business. It can also help produce more milk for the world.

To Clone or Not to Clone

Cloning a farm animal has measurable benefits, but does it make sense to clone a pet?

Some people argue that cloning is cruel to animals. Scientists have to perform surgery on female animals to get eggs, and then other females have to carry the embryos for months. Most of the time, the embryos don't grow successfully and the process has to be repeated from the beginning.

Another issue is that clones may not turn out exactly like the original. The way an animal behaves and looks depends partly on how it is raised. For example, Max 2 will grow up with different experiences than Max 1. As a result, Max 2 will be a different dog. Maybe Max 1 learned to rub his head against you. Max 2, however, might just put his chin on your lap and stare.

In the end, death might be a problem that science can't solve. Maybe there will only ever be one Max—and maybe that's a good thing. •

ART BY BROWN BIRD DESIGN

MEET DOLLY!

In 1996, a sheep was cloned—and it shocked the world. Would humans be next?

She may be the most famous animal ever to walk on Earth. She was a sheep named Dolly—and she was an exact copy of another living sheep.

Dolly was born in Scotland in 1996. The announcement of her birth made headlines in newspapers around the world. The lab that produced her received 3,000 phone calls the next week. Most of the callers were shocked that a sheep had been cloned, and they had one important question: Were humans next?

To some people, the idea of cloning humans was exciting. The science of cloning could lead to cures for diseases. And what about parents whose children had died? Maybe they should have the opportunity to replace their beloved kids with clones.

But other people found the idea frightening. What if movie studios started cloning the most attractive actors? What if wealthy parents bought cells from geniuses to produce smart kids?

The future suddenly felt dangerous. Dozens of countries made it illegal to clone humans.

In the 23 years since Dolly's birth, scientists have cloned mice, cows, pigs, goats, rabbits, cats, and dogs. However, no one has figured out how to clone a human being. It may still happen in the future—but for now, the only clones walk on four legs. •

THE SHEEP THAT CHANGED THE WORLD
Dolly raised important questions about cloning.

JEFF J MITCHELL UK/REUTERS (DOLLY)

Action Activity

Put It Together

GO FURTHER! FIND MORE ACTIVITIES

How do people feel about cloning animals and humans?

WHAT TO DO: Complete the sentences below using examples from the texts.

1. Some people are excited about cloning because _____
(Hint: Look in both articles. What are three reasons that people think cloning is a good idea?)

2. Other people don't agree with cloning because _____
(Hint: Look in both articles. What are two reasons that people think cloning is a bad idea?)