7C Leather from a lab

Over a billion animals a year are killed to make leather products like these.

B

Read the first paragraph of the passage. What is the problem with leather?

[1] Leather is a hugely popular material for a range of products: shoes, jackets, bags, wallets—the list goes on. But this popularity comes at a price. The global leather industry kills over a billion animals every year. This has caused many to ask the question: Is it possible to meet the global demand of leather but not do any harm to animals? A process called biofabrication may be the answer.

[2] Biofabrication is not new; it is already commonly used in medicine. Biofabrication techniques are used to grow body parts like ears, skin, and bones for transplants.[1] But it can also be used to make other products, such as leather. Biofabricated leather has many advantages. Scientists will be able to make it with whatever qualities they want, such as

extra softness, greater strength, or even different colors and patterns.

[3] But how exactly does biofabrication work? To grow leather, scientists begin by taking some cells from an animal, not hurting the animal in any way. They then isolate the cells and grow them in a lab. This process takes millions of cells and expands them into billions. Next, the scientists take the cells and spread them out to form thin sheets. These thin sheets are then layered to combine into thicker sheets. After that, the scientists can tan the hide.[2] Anyone can then dye[3] and finish the leather and design it in any way they like—into bags, watches, or shoes.

[4] Andras Forgacs supports biofabrication. He says it may even be a "natural evolution[4] of manufacturing for mankind." We will be able to make the products we need in a more efficient, responsible, and creative way. And biofabrication is not just about leather—it's possible the technique could also be used to grow meat. While this may sound crazy, Forgacs certainly doesn't think so. "What's crazy," he says, "is what we do today."

[1] **transplant:** *n.* an operation in which a body part is replaced

[2] **tan the hide:** *phrase* to turn animal skin into leather

[3] **dye:** *v.* to change the color of something using special liquid

[4] **evolution:** *n.* a process of gradual, natural change over time

Read the passage. Choose **T** for true, **F** for false, or **NG** for not given.

1. **Many animals are killed to make leather.**

T F NG

2. **Demand for leather is increasing.**

T F NG

3. **Biofabrication is already used in medicine.**

T F NG

4. **Animals feel pain when scientists take their cells.**

T F NG

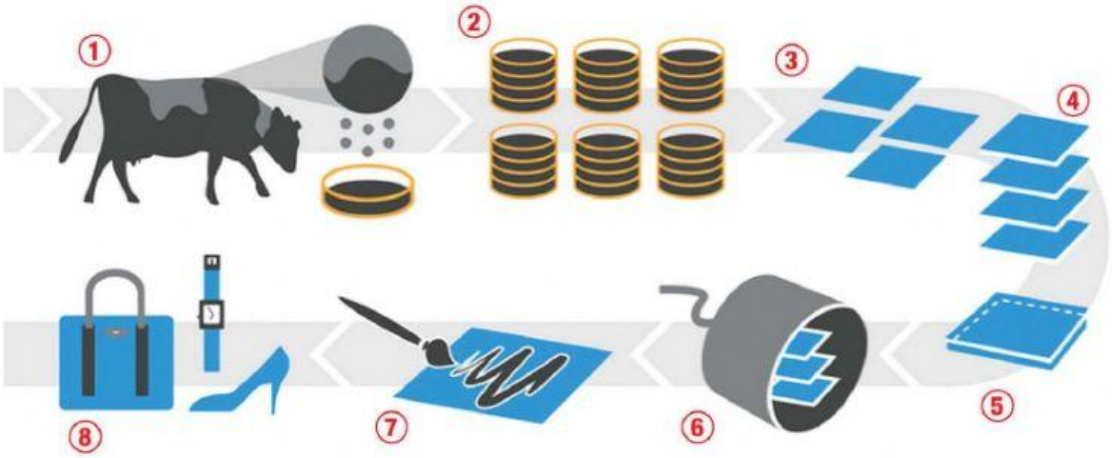
5. **Andras Forgacs is in favor of biofabrication.**

T F NG

6. **Biofabrication could be used to grow meat.**

T F NG

UNDERSTANDING A PROCESS



Look at the diagram. Number the sentences 1–8.

____ Scientists grow the cells in a lab.

____ Scientists can tan the hide.

____ Thicker sheets are formed.

____ Scientists spread the cells and form thin sheets.

____ Scientists take cells from an animal.

____ The thin sheets are layered.

____ The leather can be dyed and finished.

____ The leather is made into different products.

INSTRUCTIONS ▲

A Match each word in **blue** from the passage to its definition.

to arrange one on top of another	1. range	an extremely small part of an animal or plant
able to do something well without wasting time or energy	2. cell	a room where scientific experiments take place
a number of different things	3. lab	
	4. layer	
	5. efficient	